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Notes:

1. Untranslatable words are replaced with asterisks (****).
2. Texts in the figures are not translated and shown as it is.

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CLAIM + DETAILED DESCRIPTION

[Claim(s)]

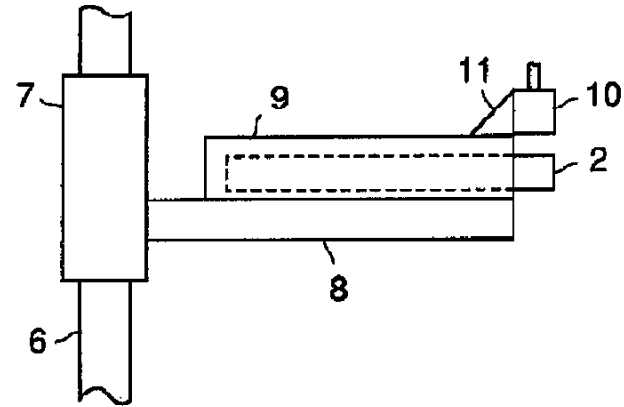
[Claim 1] The storage means for storing a disk type recording medium, and two or more disk drives prepared corresponding to the disk type recording medium of a different kind, The conveyance mechanism in which hold a disk type recording medium removable and this recording medium is conveyed between said storage means and said disk drive at least, The discernment means for identifying the kind of disk type recording medium established in the middle of the course until the disk type recording medium stored by said storage means is conveyed by said disk drive according to said conveyance mechanism, Disk library equipment equipped with a conveyance control means to direct what this recording medium should be conveyed for to said disk drive corresponding to the kind of held disk type recording medium in said conveyance mechanism based on the discernment result of said discernment means.

[Claim 2] Said discernment means is disk library equipment according to claim 1 from which the kind of this recording medium is discriminated by this discernment means when the disk type recording medium which is carried in said conveyance mechanism itself and stored by said storage means is held at this conveyance mechanism.

[Claim 3] It is disk library equipment according to claim 1 or 2 which detects the identifier by which a disk type recording medium is an optical disc cartridge, and the discernment means was given to the cartridge for [the kind of] discernment.

Drawing selection

Representative draw



[Translation done.]

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the disk library equipment which stores a disk type recording medium like an optical disc and a magnetic disk, and manages that recorded information as a library. In the equipment which stores two or more kinds of different recording media, such as a recording method and storage density, collectively especially, it is related with the thing aiming at shortening of the time required by the drive of a recording medium.

[0002]

[Description of the Prior Art] The optical disk library equipment which stores an optical disc cartridge and manages the recorded information as a library has come to spread as a kind of an electronic filing system.

[0003] There are some kinds which are [storage density / a recording method,] different of things in an optical disc cartridge. For example, it roughly divides into the recording method of an optical disc as everyone knows, and there are an only for [playback] type, added type (what cannot perform rewriting of the recorded information although a user can record information) of a postscript, and three kinds of rewritten type (that in which a user can rewrite the information which information recorded and recorded) methods in it. Moreover, there are some which have one twice or 3 times the storage density of this also to the standard storage density or the optical disc of the same recording method. And the outside dimension of a cartridge has common some irrespective of a difference of such a kind.

[0004] What stores two or more kinds of such cartridges collectively exists in optical disk library equipment. Since there is no compatibility of a disk drive when a recording method generally differs from storage density, with such library equipment, two or more disk drives which embraced the kind of cartridge are prepared.

[0005] If a certain cartridge is specified as a candidate for a drive with such conventional library equipment out of the cartridge stored for the storage means in equipment Convey the cartridge to one of disk drives first according to a conveyance mechanism, and the drive is equipped. If it is the thing of the kind which will drive as it is if it is the thing of the kind which can be driven by the drive, and cannot be driven by another side and its drive, it will take out from the drive, will convey to another drive according to a conveyance mechanism, and the another drive will be reequipped.

[0006]

[Problem to be solved by the invention] However, or [that a cartridge is what should be driven by drive / which] () namely, the cartridge -- which recording method and the thing of storage density -- it is -- if a drive was not equipped in this way and it could not judge, time was taken to drive, therefore there was a problem that the make ready time to the start of search of the recorded information became long.

[0007] This invention is made in view of an above-mentioned point, and tends to offer the equipment which can start search of that recorded information quickly in the disk library equipment which stores two or more kinds of different recording media, such as a recording method and storage density, collectively.

[0008]

[Means for solving problem] A storage means for the disk library equipment concerning this invention to store a disk type recording

medium, Two or more disk drives prepared corresponding to the disk type recording medium of a different kind, The conveyance mechanism in which hold a disk type recording medium removable and this recording medium is conveyed between said storage means and said disk drive at least, The discernment means for identifying the kind of disk type recording medium established in the middle of the course until the disk type recording medium stored by said storage means is conveyed by said disk drive according to said conveyance mechanism, It is characterized by having a conveyance control means to direct what this recording medium should be conveyed for to said disk drive corresponding to the kind of held disk type recording medium in said conveyance mechanism, based on the discernment result of said discernment means.

[0009]

[Function] If a certain recording medium is specified as a candidate for a drive out of two or more kinds of disk type recording media stored for the storage means, the kind of the recording medium will be identified by a discernment means in the middle of a course until the recording medium is held at a conveyance mechanism and conveyed by the disk drive. Based on this discernment result, what that recording medium should be conveyed for to the specific disk drive corresponding to the kind of held recording medium is directed in a conveyance mechanism by a conveyance control means. A conveyance mechanism conveys that recording medium to this specific drive according to these directions.

[0010] Thus, since the kind of the recording medium will be identified by the time a drive is equipped with a recording medium, and a recording medium is conveyed by the drive corresponding to the kind, even if it has stored two or more kinds of recording media, only the drive corresponding to the kind is always equipped with a recording medium among two or more drives. Therefore, since the time required by the drive of a recording medium is shortened, search of the recorded information can be started quickly.

[0011] In addition, carrying in the conveyance mechanism itself is suitable for a discernment means as an example. It enables this to identify the kind by a common discernment means also to the recording medium stored in which part of a storage means to common timing called the stage where the recording medium was held by the conveyance mechanism.

[0012]

[Working example] With reference to an accompanying drawing, this invention is explained in detail hereafter. Drawing 1 is the sectional side elevation showing an example of the structure of the portion of a mechanism which performs storage of an optical disc cartridge, drive, and conveyance among the optical disk library equipment which is one work example of the disk library equipment concerning this invention.

[0013] The slot 3 which is a shelf for storing collectively two or more kinds of optical disc cartridges 2 in which the outside dimension was mutually common, and two optical disk drives 4a and 4b are formed in optical disk library equipment 1 along with the perpendicular direction (the up-and-down direction of a figure). Drives 4a and 4b are drives respectively corresponding to the cartridge 2 of a mutually different kind. Below, as an example, Drive 4a drives the added-a postscript type cartridge 2, and Drive 4b presupposes that it is it what drives the rewritten type cartridge 2. Therefore, it rewrites with these postscript type, and the cartridge 2 of a model combines and is stored by the slot 3.

However, as drives 4a and 4b, although the recording method is mutually the same, the drive corresponding to the cartridge 2 from which storage density differs is prepared, respectively, for example, those cartridges 2 are combined, and, of course, you may make it not only this but store into a slot 3.

[0014] The conveyance mechanism 5 for holding a cartridge 2 removable and conveying in the perpendicular direction is formed in these slots 3 and the side of Drives 4a and 4b. The guide shaft 6 which the conveyance mechanism 5 covered the upper part from the lower part of equipment 1, and was extended in the perpendicular direction, The axle hole 7 inserted in the guide shaft 6 possible [a slide], the frame 8 fixed to the axle hole 7, the holder 9 carried in the frame 8, and rise-and-fall means (not shown) to move a frame 8 up and down along with the guide shaft 6, such as a motor and a belt, are included. A holder 9 performs operation which takes in and holds a cartridge 2 and operation which emits the cartridge 2 currently held. When a frame 8 moves up and down by a rise-and-fall means, and the holder 9 holding a cartridge 2 moves up and down to a frame 8 and one, a cartridge 2 is conveyed in the perpendicular direction within equipment 1. And by performing taking in and discharge of a cartridge 2 in a holder 9, when a holder 9 moves to the position of a slot 3 or the height of drive 4 by a rise-and-fall means Delivery of a cartridge 2 is performed between the conveyance mechanism 5 and a slot 3 or between the conveyance mechanism 5 and drive 4.

[0015] An example of the composition of the circumference of the frame 8 of the conveyance mechanism 5 in this optical disk library equipment 1 is expanded to drawing 2 , and is shown. The sensor 10 for identifying the kind of cartridge 2 held at the holder 9 to this equipment 1 is carried in the conveyance mechanism 5, when attached to a frame 8 by the supporter material 11. As shown in drawing 3 , the identifier 2a (for example, it consists of the hole of the number corresponding to the kind of cartridge etc.) for generally identifying the kind of the cartridge is given to the case of the cartridge 2. A sensor 10 identifies the kind of cartridge 2 by detecting this identifier 2a, and the light volume which enters into a light-receiving machine among the synchrotron orbital radiation from a floodlight consists of the photoelectrical switch which changes with the existence or nonexistence of the hole of the case of a cartridge 2 as an example. In addition, although the sensor 10 is attached to the end of a frame 8 in the example of drawing 2 , what a sensor 10 should be attached to the position which can detect the identifier 2a for according to the position of the identifier 2a at the time of a holder 9 holding a cartridge 2 is natural.

[0016] An example of the circuit composition of this optical disk library equipment 1 is shown in drawing 4 . Control of this optical whole disk library equipment 1 is performed by the microcomputer containing MPU (micro processing unit) 12, ROM(read-only memory) 13, and RAM (random access memory) 14. The above-mentioned drives 4a and 4b, the conveyance mechanism 5, and the sensor 10 are connected to the microcomputer through data and an address bus 15. Moreover, the operation child 16 for wearing directions who directs wearing to the drive of the cartridge 2 in a slot 3 is formed in the microcomputer. The operation child 16 consists of the operation child in which others are [being a keyboard and] proper. Furthermore, although the well-known input/output device and other apparatus (a display, a printer, etc.) which

are prepared in usual optical disk library equipment are also connected to this microcomputer, they are omitting illustration.

[0017] Next, an example of the portion about the processing which equips with the cartridge 2 in a slot 3 the drive to which it corresponds of the drives 4a and 4b among the processings which this microcomputer performs is explained based on the flow chart of drawing 5.

[0018] If the power supply of equipment 1 is switched on, processing will be started and the operation condition of the operation child 16 for wearing directions will be read (Step 100). And it is judged whether wearing to the drive of the cartridge 2 in a slot 3 was directed (Step 101). If not directed, it returns to Step 100 and processing of Steps 100 and 101 is repeated.

[0019] If wearing to the drive of the cartridge 2 stored by one part of the slots 3 is directed by the operator using the operation child 16 It is judged yes at Step 101, and progresses to Step 102, the holder 9 of the conveyance mechanism 5 is moved to the position of the height of the part of a slot 3 concerned by a rise-and-fall means, and the cartridge 2 stored by the part concerned is held by a holder 9.

[0020] Then, the kind of the cartridge 2 is identified by a sensor 10 (Step 103). And it is judged whether the cartridge 2 is an added-a postscript type cartridge (Step 104). If it is the added type of a postscript, it progresses to Step 108, and by moving a holder 9 to the position of the height of Drive 4a by a rise-and-fall means, the cartridge 2 will be conveyed to Drive 4a, the cartridge 2 will be emitted from a holder 9, and Drive 4a will be equipped. And a return is carried out.

[0021] On the other hand, if it is not the added type of a postscript, it will progress to Step 105, the cartridge 2 will rewrite, and it will be judged whether it is the cartridge of a model. If it is a rewritten type, it progresses to Step 109, and by moving a holder 9 to the position of the height of Drive 4b by a rise-and-fall means, the cartridge 2 will be conveyed to Drive 4b, the cartridge 2 will be emitted from a holder 9, and Drive 4b will be equipped. And a return is carried out.

[0022] on the other hand, if it is not a rewritten type, either, and that cartridge 2 is not a cartridge of the kind which can be driven with this optical disk library equipment 1 namely,, an error display will be performed to Step 106 using the proper output unit (for example, display) which is not progressed and illustrated. Then, the cartridge 2 is emitted from a holder 9 as it is, and is again stored in the part of the basis of a slot 3 (Step 107). And a return is carried out.

[0023] thus, [this optical disk library equipment 1] [cartridge / 2 / which is stored by which part of the slot 3] In the stage () where the cartridge 2 was held at the holder 9 of the conveyance mechanism 5 Namely, by the time Drive 4a or 4b is equipped with the cartridge 2 By the sensor 10 carried in the frame 8 of the conveyance mechanism 5, the kind is identified, and only the drive corresponding to the kind is conveyed and equipped with the cartridge 2 among Drive 4a or 4b based on the discernment result. Therefore, since the time which requires a cartridge 2 by drive is shortened, search of the recorded information can be started quickly.

[0024] In addition, although the photoelectrical switch is formed in this work example as a sensor 10 which identifies the kind of cartridge 2, you may make it form not only this but other proper sensors.

[0025] Moreover, although the sensor 10 is carried in conveyance mechanism 5 the very thing, you may make it form a sensor 10 in one in

the middle of a course until the cartridge 2 stored by not only this but the slot 3 is conveyed by Drive 4a or 4b according to the conveyance mechanism 5 of parts in this work example.

[0026] Moreover, although this invention is adopted as the optical disk library equipment which stores and drives two or more kinds of cartridges from which a recording method or storage density differs in this work example You may adopt this invention as the disk library equipment which stores and drives not only this but two or more kinds of disk type recording media in which others are [being a magnetic disk and] proper.

[0027]

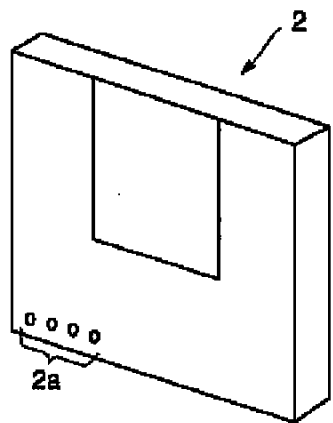
[Effect of the Invention] As mentioned above, according to the disk library equipment concerning this invention, two or more kinds of recording media are set to the disk library equipment stored and driven. By the time a drive is equipped with a recording medium, the kind of the recording medium will be identified, and only the drive corresponding to the kind is conveyed and equipped with a recording medium. Therefore, since the time required by the drive of a recording medium is shortened, search of the recorded information can be started quickly.

[Translation done.]

[Report Mistranslation](#)

[Japanese \(whole document in PDF\)](#)

Drawing selection **drawing 3**



[Translation done.]